In The Application Of

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For

PORTABLE RAMP SYSTEM

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BACKGROUND OF THE INVENTION

This Application is a continuation of Application Serial Number 09/891,079, filed by present Applicant, which is related to Provisional Patent Application Number 60/214,677, filed by present Applicant Joseph Massaro, on June 27, 2000.

Field of the Invention:

The present invention is a portable ramp system particularly intended to assist temporarily handicapped persons with transport in and out of houses and buildings. Specifically, the system consists of several modular ramp members removably attached to one another to allow convenient wheelchair access to the application in question. Preferably constructed of wood, the members consist of hingedly-attached starter, rise, and straight panels, which may be folded down to a relatively compact size for the purpose of removal and transport. In addition, the system may include collapsible railing members to further assist the user. Finally, the horizontal panels of the ramp system may include a skid-resistant surface for the utmost in wheelchair traction. As such, the ramp system meets applicable ADA guidelines and provides a quick, convenient, and relatively inexpensive means for temporarily handicapped persons to access houses and similar structures.

Description of the Prior Art:

Numerous innovations for ramp systems have been provided in the prior art that are described as follows. Even though these innovations may be suitable for the specific individual purposes to which they address, they differ from the present invention as hereinafter contrasted. The following is a summary of those prior art patents most relevant to the invention at hand, as well a description outlining the differences between the features of the present invention and those of the prior art.

1. United States Utility Patent 5,933,898, invented by Estes et al., entitled "Portable Wheelchair Ramp"

In the patent to Estes, a series of hingedly connected spanning panels is provided. Each spanning panel includes two opposing outer edges. Alternating ones of the spanning panels include a raised ridge disposed along each of the outer edges of the spanning panel. At least one sleeve is disposed along each of the outer edges of a plurality of the spanning panels. A plurality of elongated rods are provided. Each of the rods is configured to pass through a plurality of the sleeves, the rods thereby maintaining the spanning panels in a substantially fixed linear relationship to one another. An end panel is hingedly connected to each end of the series of hingedly connected spanning panels. Each of the end panels is substantially wedge shaped and includes a gripping surface.

2. United States Design Patent Des. 373,885, invented by Holland, Jr., entitled "Telescopic Ramp"

The design patent to Holland, Jr. describes an ornamental design for a telescopic ramp, as shown.

3. United States Utility Patent 3,818,528, invented by Peterson, entitled "Portable Ramp For Wheel Chairs And The Like"

The patent to Peterson describes a portable ramp embodying a number of longitudinal ramp members disposed side by side, each including a number of separate ramp sections arranged end to end, and hinges joining the adjacent ramp members and the adjacent ramp sections of each member in a manner such that the ramp may be folded laterally and endwise between an expanded configuration of use and a collapsed configuration in which the ramp may be conveniently stored and transported. The ramp is intended primarily for use as a wheel chair ramp for steps and the like, although the ramp may be used for other purposes.

4. United States Utility Patent 5,517,708, invented by Baranowski, entitled "Community Pathway Access System For Wheelchair Users"

In the patent to Baranowski, an access pathway is provided as a device that may be temporarily or portably deployed for wheelchair users accompanied by an assistant. The device,

which is a pathway that may be carried by the user or provided at a site when required, is installed in cooperation with a pre-existing anchor at the site, and may be subject to temporary loan, such as from a central community service provider or a library. A convenient and inexpensive system is thus provided that achieves wheelchair access in many circumstances.

5. United States Utility Patent 5,214,817, invented by Allen, entitled "Modular Ramp And Landing Walkway Assembly"

The patent to Allen describes a modular ramp and landing assembly made from a plurality of similarly sized pre-manufactured concrete filled rectangular panels. The ramp portion is made from the modular panels attached by their shorter sides. A support post with an angularly arranged bracket is placed beneath the corners of adjacent panels to secure them together as well as support them. The landing or horizontal portion of this assembly comprises a similarly sized rectangular panel the long side of which is in abutting relationship with the short side of the end of the ramp. Fastener receivers are equi-spaced in duplicate patterns from each corner through the bottom edge of each panel. The size of the panels and the spacing of the fastener receivers are such that minimum support legs and brackets may be utilized in constructing this assembly at a final site.

6. United States Utility Patent 4,945,595, invented by Meriweather, entitled "Modular Ramp Assembly"

The patent to Meriweather describes a lightweight pedestrian ramp assembly for bridging a span of open water between two marine structures is readily adaptable in length and width to meet existing site requirements. The ramp assembly is constructed of successive elongated ramp units, each of which is in turn constructed of adjacent, elongated channel shaped fiberglass modules defining a planar walking surface across the backs of the channel webs.

7. United States Utility Patent 5,671,496 invented by Smith, entitled "Portable Wheel Chair Ramp"

The patent to Smith describes a wheel chair ramp comprising a plurality of leaves extending in the direction of intended use of the ramp. The leaves are joined together by flexible hinges so that the leaves may be folded to a stalked condition. The flexible hinges are formed by fabric straps attached to the sides of the leaves and passing between adjacent leaves.

8. United States Utility Patent 5,446,937, invented by Haskins, entitled "Modular Ramp System"

The patent to Haskins describes a modular ramp system for use with a threshold which has an offset. The modular ramp system includes a number of elements which may be arranged in various combinations in order to conform to offsets of varying height.

9. United States Utility Patent 5,894,618, invented by Jacobsen et al., entitled "Ramp System"

The Jacobsen et al. invention relates to a ramp system. The ramp system includes a riser component with a first side and second side that meets the first. The second side and first form an angle less than 90°. The system also includes an adjuster component positionable within the riser. The adjuster component lifts one end of the first side so that an angle that the second makes with the horizontal is increased compared to an angle made between the second side and the horizontal without the adjuster component.

10. United States Utility Patent 3,995,832 invented by Wiese, entitled "Collapsible Bleacher Rail"

The patent to Wiese describes a collapsible bleacher railing in conjunction and for use with a collapsible bleacher section or sections, which includes normally vertical, upright, support sections having a plurality of telescoping handrail sections therebetween such that as the bleachers are moved to their relative locations, the handrail will extend and collapse therewith and therefore eliminate the requirement for removal from the bleacher sections.

11. United States Utility Patent 5,237,932, invented by Edwards, entitled "Collapsible Railing"

The patent to Edwards describes a collapsible railing having an upper rail and a plurality of posts hingedly attached to the upper rail at spaced apart locations. A crank including a shaft portion

and an arm portion which is mounted for rotation about the long axis of the shaft portion is connected to each post. An actuator actuates the motion of the crank to pivot the posts and the upper rails between a collapsed position in which each post is oriented generally horizontally, and an erect position in which the posts are in an upright position.

12. United States Utility Patent 6,009,586, invented by Hawkes et al., entitled "Truss And Panel System For Access Ramps"

The patent to Hawkes et al. describes a ramp structure which may be constructed quickly to provide temporary or permanent access to all individuals between two areas of different elevation. A truss design allows long spans to form a bridge without the need for intermediate supports and related support foundations. A truss cross-connector is firmly wedged in place between two trusses and allows the quick, solid joining of two trusses without fasteners to form a strong and stable assembly to serve as ramps, bridges, elevated walkways, etc. The truss cross-connector has resistance to bending and supports the edge of a surface panel and provides a retaining pocket for the surface panel. The truss cross-connector firmly supports the trusses in an upright position when the trusses are used as railings. Surfacing panels placed between the truss cross-connectors provide a quality, long lasting surface which is quickly installed for temporary or permanent installations. The truss cross-connector also prevents casual removal of a closely fitting surface panel. A special tool is included in the system for easy disassembly of light trusses of this design without damage to the components. The design of the ramp system can be easily disassembled and reused for temporary or

permanent installations and meets Americans with Disabilities Act guidelines.

As outlined above, the prior art patents that relate to temporary or portable ramps largely entail elements such as: telescopic panels; panels held together by fabric straps; portable ramps intended to bridge water; and portable ramps intended to assist the user in entering and exiting vehicles. Generally, such prior art patents describe relatively small portable ramps, rather than stronger, more stable ramp systems that may be installed for several months and then removed. Collapsible railings appear in certain prior art patents, but such inventions mostly relate to bleachers and seating assemblies.

In contrast to all of the above, the present invention is a system of hingedly-attached wooden starter, rise, and straight ramp panels which may be folded down to a compact size for removal and transport. The system includes collapsible railing members and a skid-resistant surface for enhanced safety and general effectiveness.

SUMMARY OF THE INVENTION

As noted, the present invention is a portable ramp system intended to assist handicapped persons with transport in and out of houses and buildings.

Accordingly, it is an object of the invention to provide a system consisting of several modular ramp members removably attached to one another to allow convenient wheelchair access to the application in question.

It is an additional goal of the invention to provide a ramp system constructed of wood, for the purposes of strength and durability.

It is another object of the invention to provide a ramp system consisting of hingedly-attached starter, rise, and straight panels, which may be folded down to a relatively compact size for the purpose of removal and transport.

Furthermore, it is a goal of the present invention to provide a ramp system which may include collapsible railing members to further assist the user.

It is another object of the invention to provide a system featuring horizontal panels which include a skid-resistant surface for the utmost in wheelchair traction.

Finally, it is an important goal of the present invention to provide a temporary ramp system that meets all applicable ADA guidelines and provides a quick, convenient, and relatively inexpensive means for temporarily handicapped persons to access houses and similar structures.

The novel features which are considered characteristic for the invention will be set forth in the claims when submitted. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the description of the embodiments to be submitted when read and understood in connection with accompanying figures.

BRIEF DESCRIPTION OF PREFERRED EMBODIMENTS

FIGURE 1 is a display of basic modular components of the present system including starter portion, rise members, straight members, and collapsible railings.

FIGURE 2 is a display of sample layouts of the basic modular components, illustrating various installation combinations of the present invention, also for the purposes of example only.

FIGURE 3 is a side, three-quarter perspective view of one embodiment of the present invention, illustrating the principal components in three-dimensional view.

FIGURE 4 is a side, partially exploded view of one embodiment of the present invention, illustrating the principal components in three-dimensional view, with means of attachment thereon.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The following description refers to FIGURE 1, which is a display of basic modular components of the present system including starter portion, rise members, straight members, and collapsible railings; FIGURE 2, which is a display of sample layouts of the basic modular components, illustrating various installation combinations of the present invention, also for the purposes of example only; FIGURE 3, which is a side, three-quarter perspective view of one embodiment of the present invention, illustrating the principal components in three-dimensional view; and FIGURE 4, which is a side, partially exploded view of one embodiment of the present invention, illustrating the principal components in three-dimensional view, with means of attachment thereon.

As depicted in FIGURE 2, each version of the system consists primarily of at least one start component, at least one rise component, and at least one platform or straight component, each of a size and shape selected from the components illustrated on FIGURE 1. The components are constructed of wood in the preferred mode, providing an attractive and economical option for the handicapped and disabled in need of a ramp assembly.

For the purposes of example, simple pressure treated lumber may be utilized to accomplish the purposes of the invention. Thus, a particular distinction between the present invention and ramp systems of the prior art lies in the usage of such wood components in conjunction with the modular ability of the present invention. Importantly, any of these components may be of a great variety of lengths or widths, as needed for each application. Depending upon the configuration of the area to which the ramp system is temporarily installed (ie. door location, location of path, etc.), additional components besides the start, rise, and platform may be utilized.

Thus, the example shown in the top left hand corner of the FIGURE includes a 90 degree straight component, which functions to affix to a rise component on a first side and a straight component on the second side. This functions to create a generally "L" shaped configuration, when needed.

Along the same lines, the example depicted on the center left portion of the FIGURE includes a 45 degree straight component, which similarly functions to affix to a rise component on a first side and a straight component on the second side. This functions to create a generally curved configuration, when the location of the door dictates that such is required.

More elaborate embodiments are depicted in the two illustrations on the right hand side of FIGURE 2, wherein the ramp system is adapted to include 6 or more components, such as 3 or more rise components with a start component, at least one platform, and 90 degree straight component, if needed.

In any case, a series of mounted brackets as a fastening means of components may be utilized. Such unique brackets are interlocking in nature and provide convenience in installation as well as sufficient space for drainage in the system.

To further illustrate the overall design, size, and possible configuration of the present invention, FIGURES 3 and 4 are side, three-dimensional views of a simple layout of the ramp system, shown for the purposes of example only. Specifically, illustrated in FIGURE 3 are the start component (12), which comprises start top surface (12A) and start bottom surface (12B); rise component (14), which comprises rise top surface (14A) and rise bottom surface (14B); platform component (16), which comprises platform top surface (16A) and platform bottom surface (16B); collapsible railing assembly (18), which comprises horizontal members (18H) and vertical members (18V); and a plurality of support members (20). Illustrated in FIGURE 4 are the principal components, as well as fastening means (22, 24).

As already mentioned, the start component (12), rise component(s) (14), and platform component(s) (16) may each be of a previously determined length and width, according to what is necessary.

Railing assembly (18) includes a total of 3 horizontal members (18H) in the preferred mode, but may also consist of 2 or 4 such members. A quantity of vertical members in proportion to the length of the assembly are utilized for support. Support brackets in a general "X" shape may also be utilized, functioning to provide additional support for higher vertical railing members.

Moreover, the start top surface (12A), rise top surface (14A), and platform top surface (16A) may each comprise a non-skid material thereon, functioning to allow for increased traction for wheels and the like. The railing assembly (18) and any other components may comprise a textured, coated material thereon, functioning to protect the components from moisture and also allowing for an enhanced gripping surface for the purposes of safety. The start component (12) may also comprise an aluminum transitional member at a first end thereof, functioning to bridge any gap between a ground surface and the start component, for ease of transport of a wheelchair or the like.

Regarding any of the above embodiments, as mentioned in the Summary section herein, the entire ramp system conforms to any and all applicable ADA guidelines. Most notably, the guidelines require 1 inch or rise in pitch per every 1 foot in length of ramp utilized. The present invention adheres to such standards, rendering the system effective and safe for a host of applications and uses.

Within such guidelines, the precise angle at which the components sit may be varied, if desired for a particular application.

To use a common example to further describe the above, a 3 step configuration at a height of 24 inches utilizes 2 – 8 foot rise members, a single 8 foot start component, plus the platform or straight component as desired. As an additional example, a total of only 2 steps at a height of 14 inches utilizes a single 6 foot start member, a single 8 foot rise component, plus the platform or straight component as desired.

It should also be noted that the size and total length of the present ramp system can vary tremendously, such as from as little as 6 feet in length, to as much as over 80 feet in length. In addition, all of the aforementioned components may further comprise a curb of a previously-determined size. For example, the preferred embodiment utilizes a 3 ½ inch curb.

Furthermore, the starter component of any configuration may include a closed extended rail member thereon, functioning to provide a convenient means for the user to gain support when entering the ramp area that is still very safe in nature. In addition, an inside grab rail may be included in the system, installed separately as a option for extra safety and support. In any case, the railing assembly may include a center rail which is continuous and unobstructed, so as to allow a user to use the rail for support without any impediments.

Moreover, the top rail of the ramp system of the present invention may utilize a series of interlocking components in a tongue and groove style configuration, functioning to provide additional support to the assembly. In such case, certain bracket-like support members comprise a substantially flat, rectangular member extending outwardly from an edge of the bracket, with a corresponding series of bracket-like support members comprising similarly-shaped apertures for receiving such extended members. The extended members may be constructed of a durable metal or other rigid material, and may be further reinforced through usage of traditional fasteners.

Also, in any instance the ramp system may comprise an illumination means thereon, functioning to provide additional light in the ramp area for safety and to enhance the appearance of the system. Along similar lines, the ramp system of the present invention may even include a variety of decorative elements thereon, such as attractive spindles upon the railing assembly or the like. Such will enhance the appearance of the system and provide an aesthetically pleasing item that renders the same an even more attractive option for users in need of a ramp assembly.

Therefore, in total, the versatile nature of modular components allows the ramp system of the present invention to adapt to accommodate virtually any application, the system can be literally made to order, the system is highly effective in nature yet inexpensive, the system provides ease of installation and ease of transport not provided by the prior art, and the system conforms to all safety requirements and guidelines.

With regards to all FIGURES, while the invention has been illustrated and described as embodied, it is not intended to be limited to the details shown, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can readily adapt it for various applications without omitting features that, from the standpoint of prior art, constitute essential characteristics of the generic or specific aspects of this invention. What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.